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# Drought Planning in a Multihazards Context

## Survey Report



**American Planning Association**

*Making Great Communities Happen*

Prepared by the National Drought Mitigation Center (NDMC) for the American Planning Association (APA) to support the U.S. Federal Emergency Management Agency-funded project [Drought Mitigation Planning in a Multi-Hazards Context](#).



**American Planning Association**

*Making Great Communities Happen*



NATIONAL DROUGHT  
MITIGATION CENTER  
UNIVERSITY OF NEBRASKA



The American Planning Association and the National Drought Mitigation Center conducted a survey of APA membership to understand planning practitioners' needs and obstacles regarding drought and hazard mitigation planning. In May 2018, the entire APA membership of approximately 36,000 received invitations to participate in the survey via email and through an invitation in APA's weekly newsletter [Interact](#). Representing all 50 states (Figure 1), about 1,850 APA members responded to the survey, with nearly 1,450 indicating that they were currently planning practitioners.

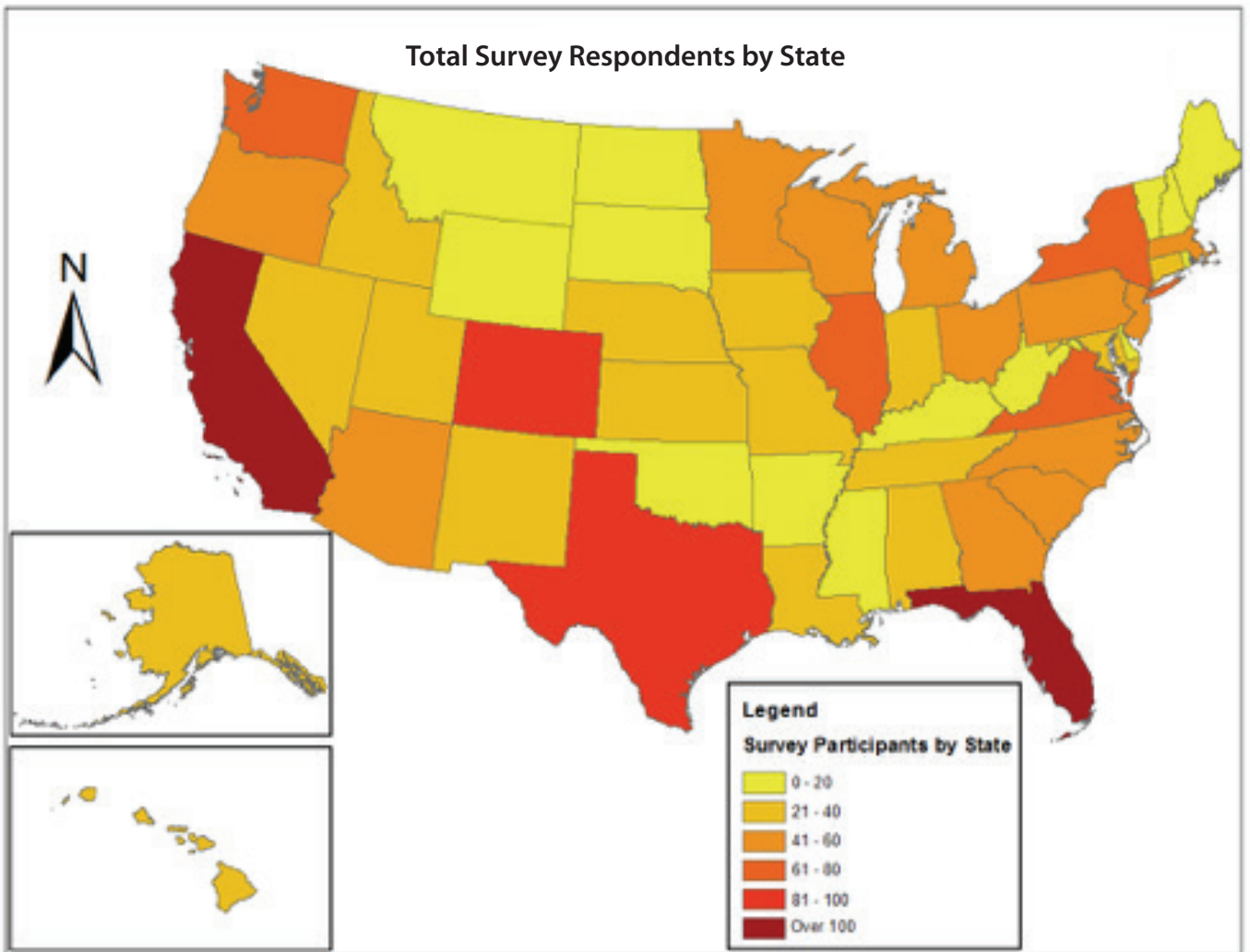


Figure 1: Total number of survey respondents by state

## Description of Respondents

Respondents have worked as planners for an average of 18 years (min=0, max=55). More than half worked for public planning agencies, and about 18 percent worked in the private sector. About 75 percent specialized in land-use planning, 52 percent specialized in comprehensive/long-range planning, and another 40 percent specialized in housing, community development, or redevelopment. The rest indicated a wide variety of specializations including transportation, economic development, natural resources, urban design, code enforcement, and historic preservation. About 23 percent said they specialize in hazard mitigation or disaster resilience (Figure 2).

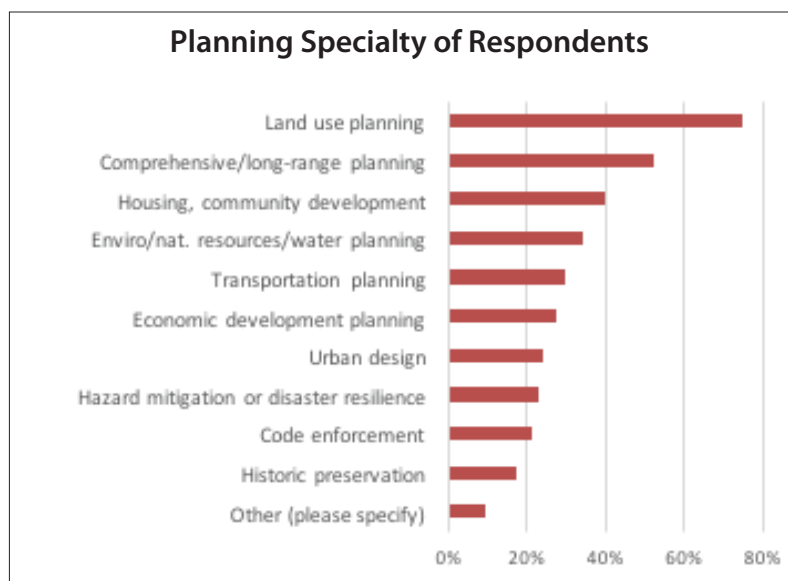


Figure 2: Percent of respondents by specialty (N=1286)

## Planning Jurisdictions Represented

A little more than half of respondents said they currently work with one primary planning jurisdiction, while the rest work with multiple jurisdictions. And about half of respondents worked at the municipal level, as opposed to county, state, tribal, special districts, or other levels. Jurisdictions of diverse sizes are represented (Figure 3). Many respondents said their planning jurisdictions would likely grow over next 10 years: 43 percent predicted up to five percent growth, and 28 percent predicted five to 10 percent growth. Almost 20 percent of respondents expected their planning jurisdictions to grow more than 10 percent over the next 10 years.

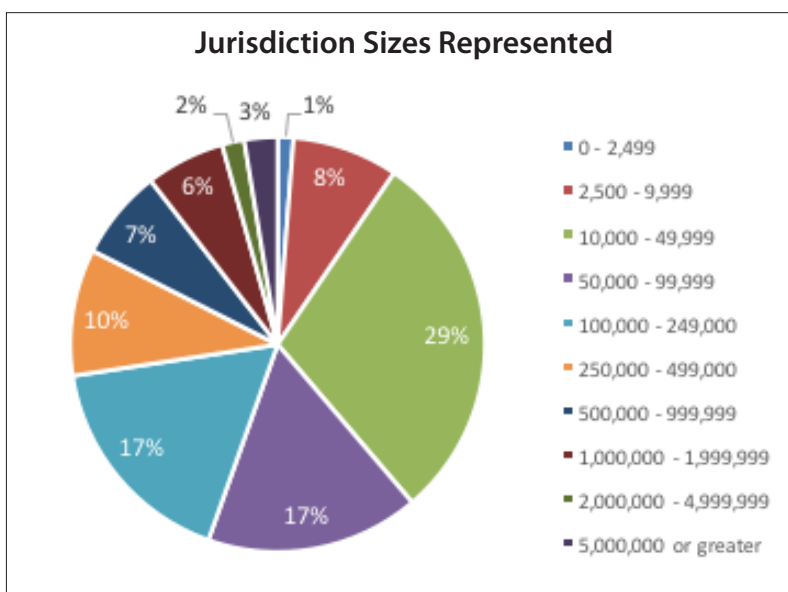


Figure 3: Percent of planners working in jurisdictions of each population size (N=810)

## Planners' Involvement With Hazard Mitigation Planning

Planners responding to the survey were largely removed from hazard mitigation. We asked respondents what percent of their time is spent working on hazard mitigation planning (including drought). More than 80 percent said they spent less than 10 percent of their time working in hazard mitigation planning (Figure 4). We also found that many planners do not communicate with planning specialists who work with hazards such as drought. We asked respondents how frequently they communicate with hazard planners, emergency managers, and water managers. More than half said that they never or rarely communicate with hazard/emergency planners or water managers on any matter, and an even higher percentage never or rarely communicate with these groups about drought (Figure 5).

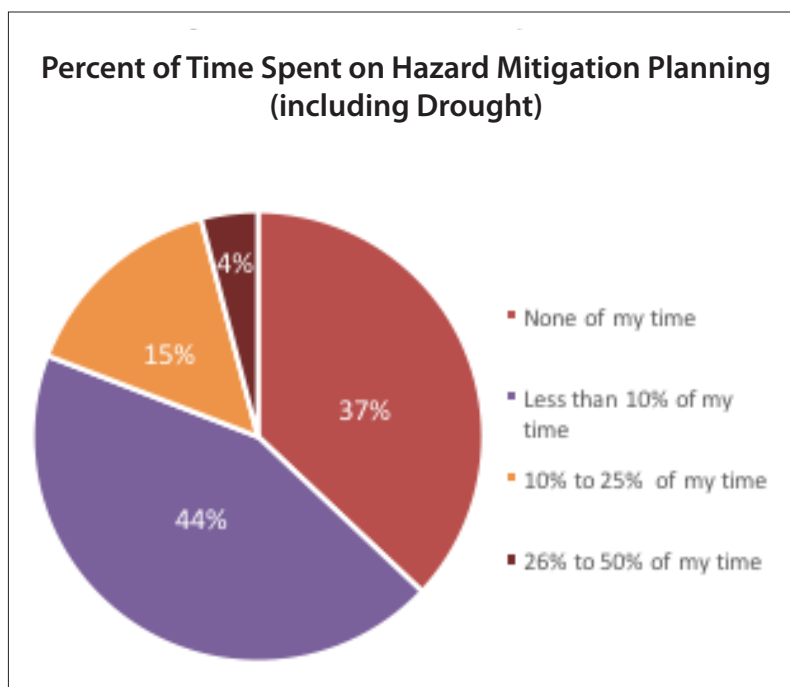


Figure 4: Percent of time planners spend on hazard mitigation planning (N=1180)

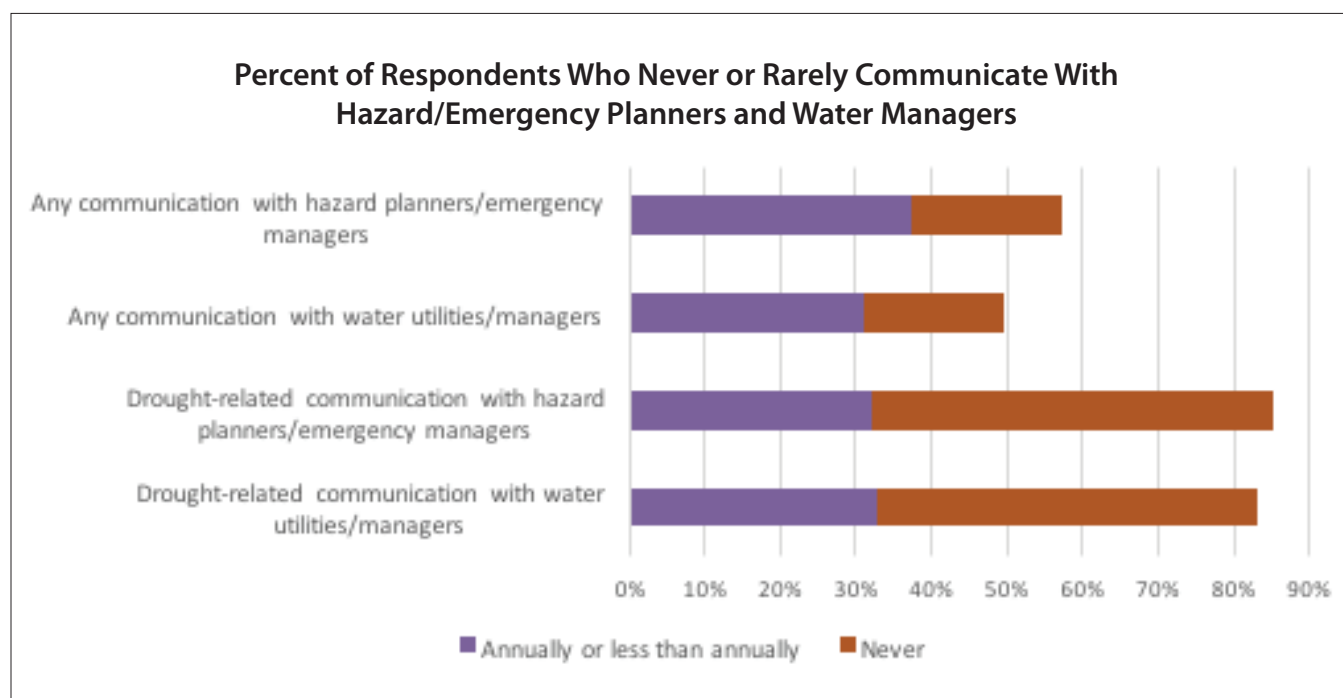


Figure 5: Percent of planning reporting that they “annually or less than annually” or “never” communicate with hazard/emergency planners and water managers about any matter (top two bars) and specifically about drought (bottom two bars) (N=~1280)

## Planners' Concerns Related to Hazards, Including Flooding and Drought

We asked respondents how concerned they are about a number of natural hazards for the planning jurisdictions with which they work. Overall, respondents said they are most concerned about flash flooding and severe weather/thunderstorms for their planning jurisdictions, and drought ranked third among a list of 14 possible concerns (Figure 6).

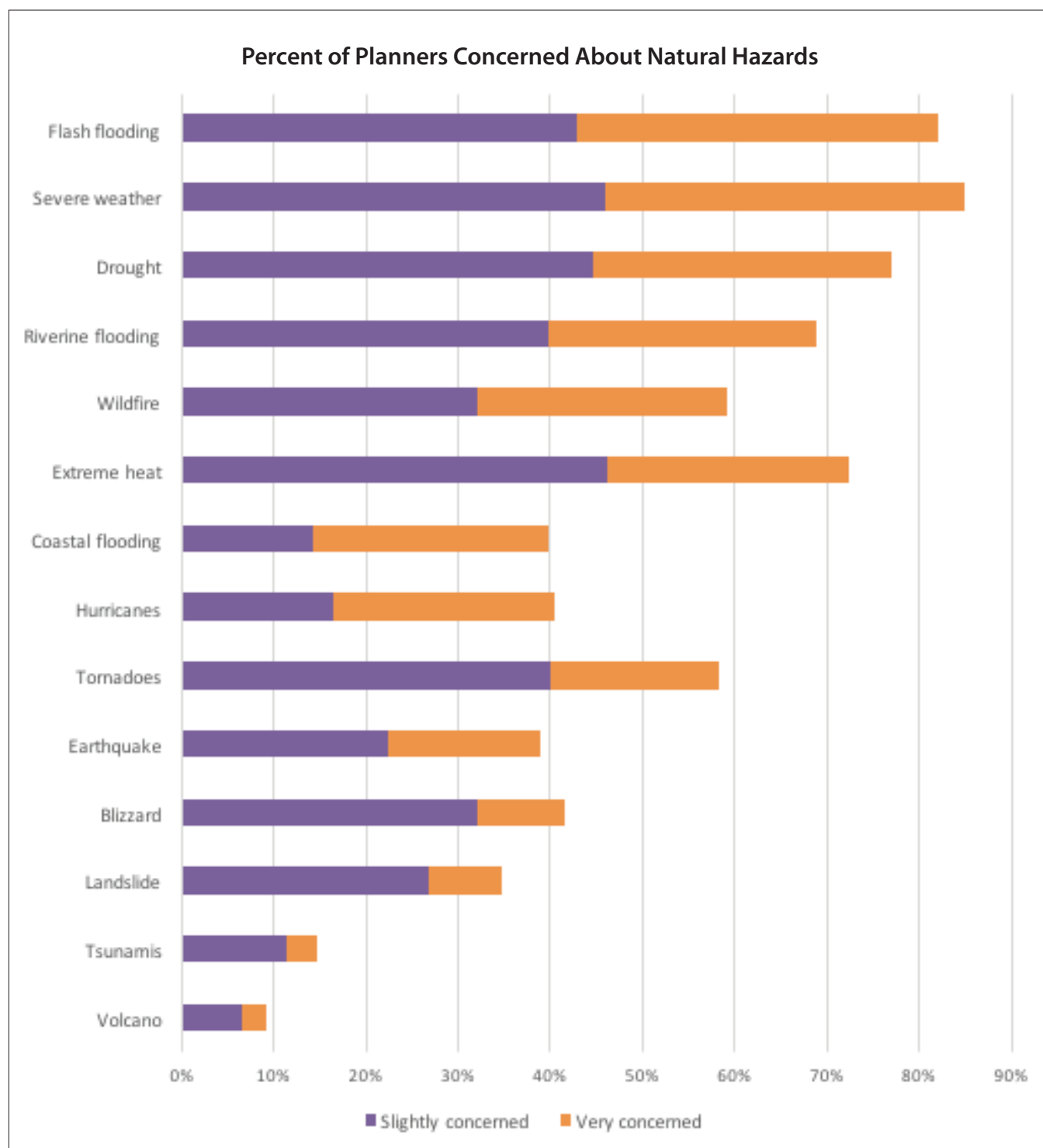


Figure 6: Percent of planners slightly and very concerned about each natural hazard (N=~1250)

## Planners' Experience With Past Droughts

For respondents who work with one primary planning jurisdiction, we asked how often their jurisdictions have experienced flooding and drought over the last 10 years. About 70 percent of respondents recalled their planning jurisdiction experiencing drought at least once in the last 10 years, though 14 percent said they didn't know (n=724). About 85 percent recalled experiencing flooding at least once in the last 10 years, with eight percent saying they didn't know (n=693) (Figure 7).

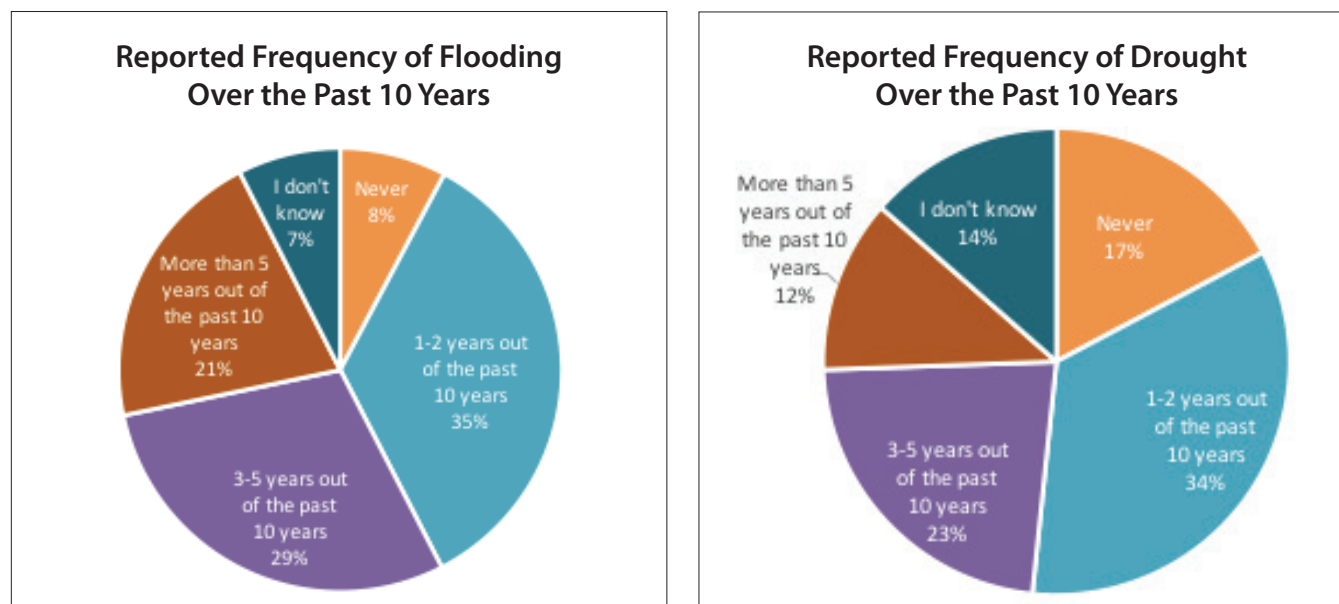


Figure 7: Percent of planners reporting frequency of experiencing flooding and drought and drought in their jurisdiction over the past 10 years

## Planners' Awareness of Drought Impacts

We asked all respondents if the region(s) in which they work have experienced problems due to drought or flooding. The impacts of drought or flooding that respondents were most aware of included damage to physical infrastructure, impacts to trees and other vegetation, damage to natural habitats, and soil erosion. Respondents were most likely to respond “I don’t know” to the occurrence of soil crusting, impacts to fish/aquatic species, impacts to wildlife, and impacts on energy production/consumption (Figure 8). Overall, about 75 percent of respondents agreed that addressing drought impacts can help to minimize flood impacts as well.

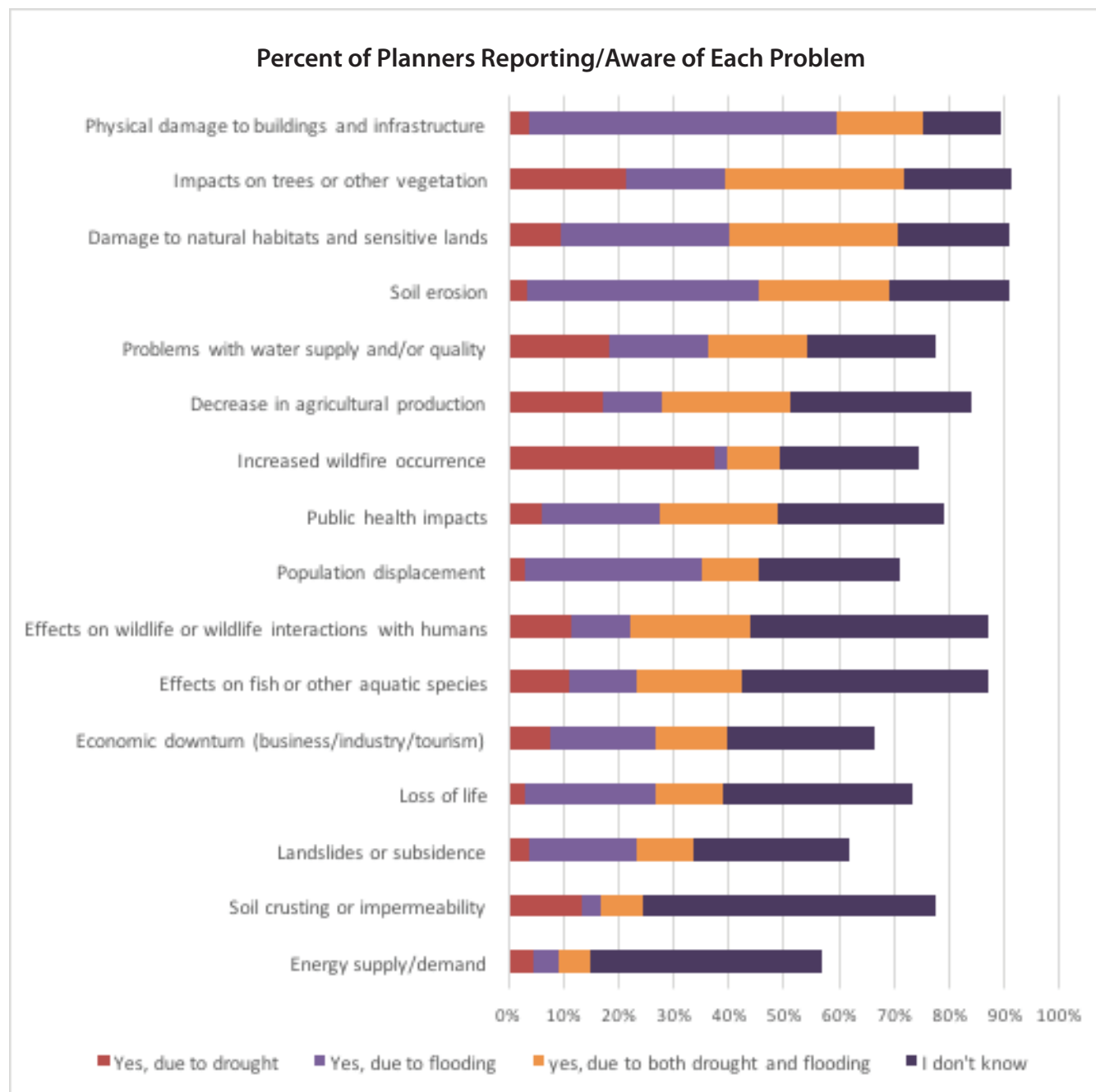


Figure 8: Percent of planners reporting/aware of each problem as being an impact of drought and/or flooding (N=~1180)



## Addressing Drought Through Planning

We asked respondents whether, to the best of their knowledge in the planning jurisdictions with which they work, drought is specifically addressed in hazard mitigation, water conservation, emergency response, comprehensive, green infrastructure, drought, or community wildfire protection plans. Of those whose planning jurisdiction has each type of plan, respondents were most likely to say that their water conservation plan or hazard mitigation plan addressed drought, and most likely to say that their comprehensive plan did not specifically address drought. There was uncertainty as to whether their green infrastructure plans, drought plans, or community wildfire protection plans either existed or addressed drought (Figure 9). Almost half said that they did not know if any of their plans addressed drought and flooding in an integrated way. About 80 percent were not aware of efforts within their jurisdictions to develop or update plans that specifically address drought, within the next year or two (either replying “no, there are no efforts” or “I don’t know”). More than 75 percent had not participated in development or update of a plan that specifically addresses drought.

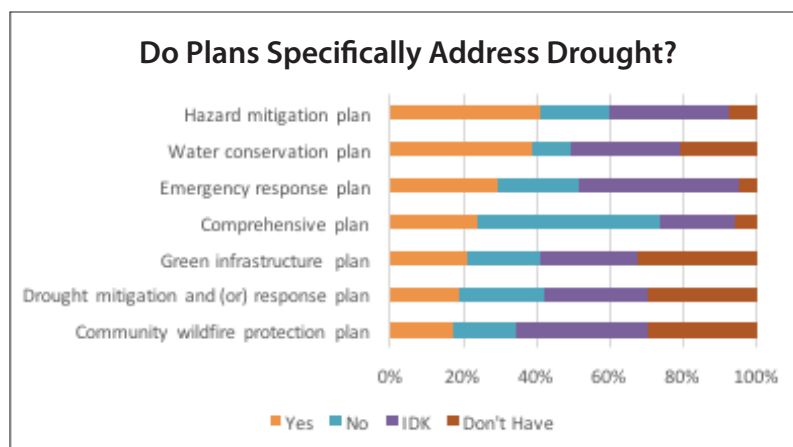


Figure 9: Percent of respondents aware of each type of plan addressing drought (N=~1160)

## Opportunities, Needs, and Barriers

In general, respondents agreed that addressing drought impacts helps minimize flood impacts as well and felt that it was possible to prepare for drought. However, more than 60 percent of respondents said that the public is not concerned with drought, political will is lacking, and that states and national entities do not provide enough support for preparing for drought (Figure 10, below).

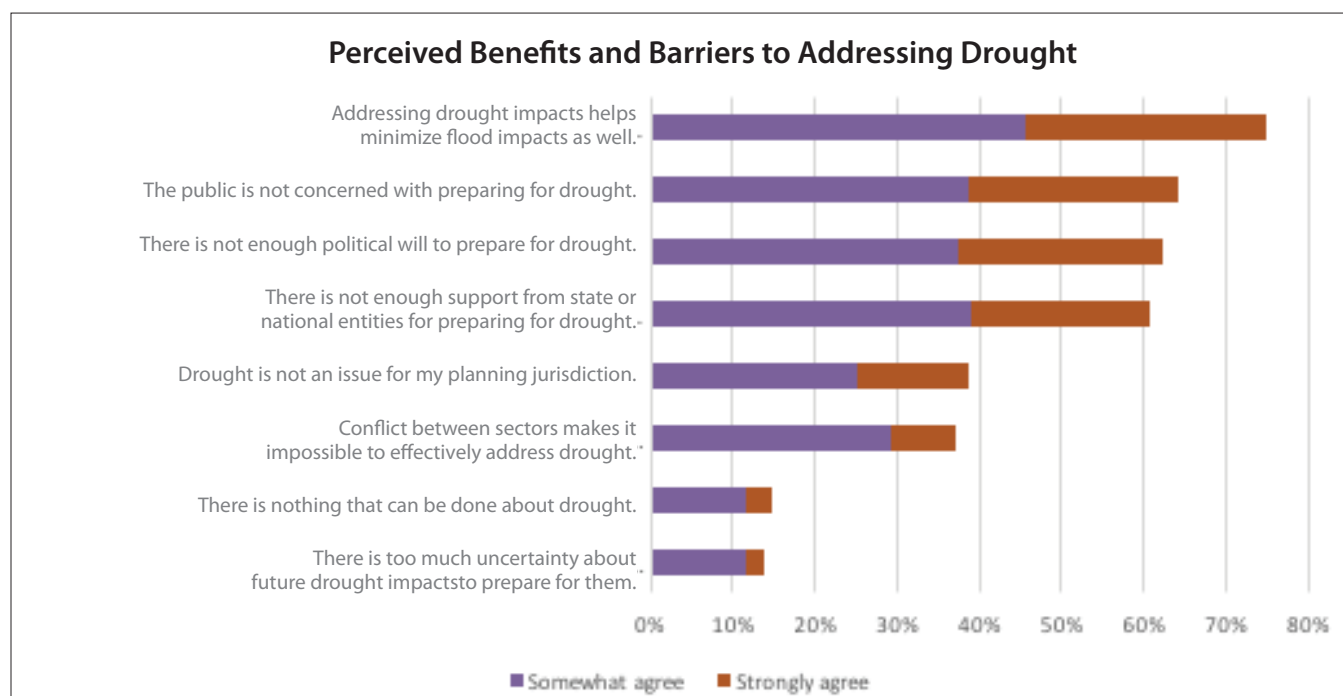


Figure 10: Percent of respondents who somewhat and strongly agreed with each statement (N=~550)

Overall, the biggest perceived barriers to addressing drought through planning were lack of funding and lack of staff resources (Figure 11, p. 8). We asked about specific needs regarding funding, as well as monitoring/prediction data, impact data, and knowledge experience—which all ranked lower as perceived barriers. Funding needs included resources for implementing mitigation actions and for developing a plan. Training opportunities included integrating drought into other plans and selecting mitigation options. Primary data needs included data on future drought conditions, mitigation options/costs/benefits, response options/costs/benefits, likelihood of future drought impacts, and economic gains/losses of impacts (see full lists on p. 11).

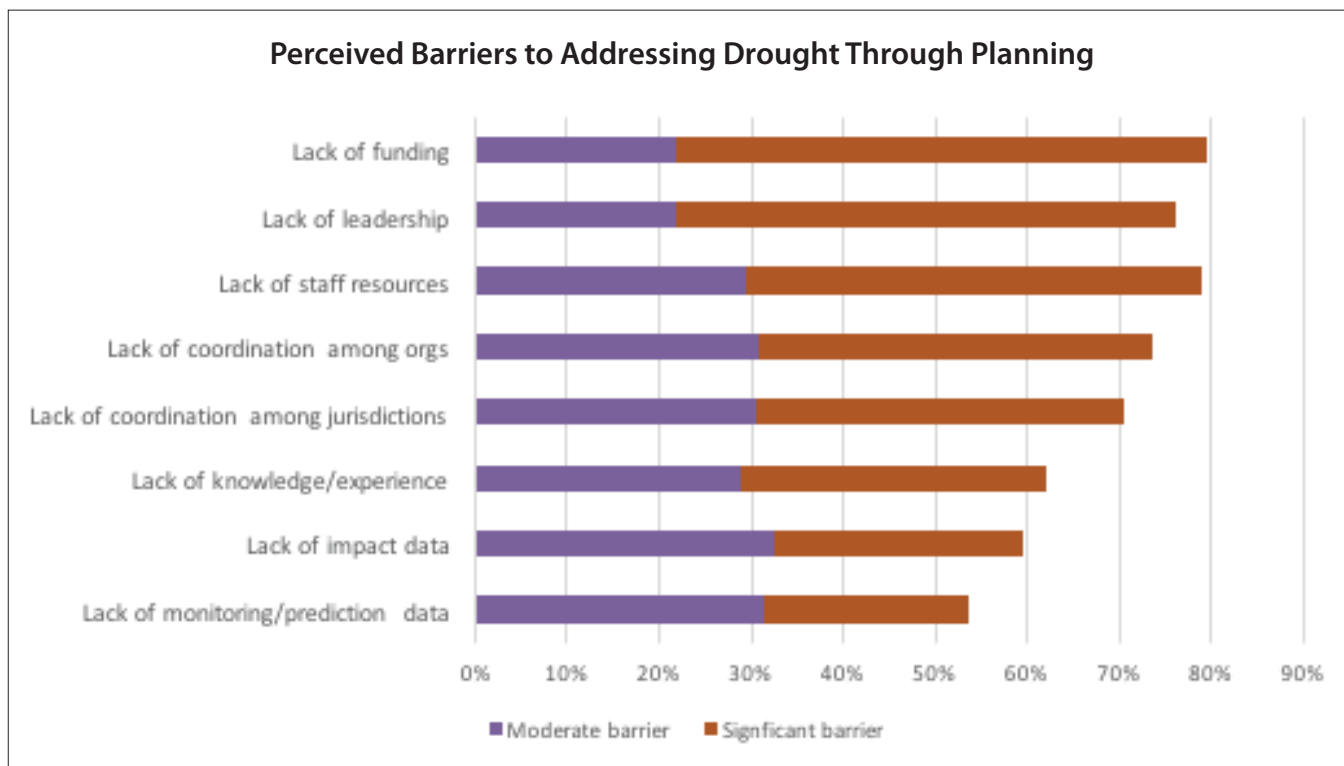


Figure 11: Percent of respondents who rated each item as a moderate or significant barrier to addressing drought through planning (N=~940)

### Critical Information and Resource Needs for Drought Planning, Identified by Planners

We asked respondents who identified funding, knowledge/experience, and data as barriers to vote for the types of funding, types of training, types of impact and management data, and types of monitoring and prediction data that they think are currently lacking. The choices and number of votes are listed below.

#### Types of funding needed (number of votes)

- Implementing mitigation actions (534)
- Developing a plan (511)
- Implementing response actions (476)
- Obtaining training on planning (450)
- Enforcing restrictions (437)
- Assessing occurrence/impacts (364)
- Monitoring conditions (308)

#### Types of training needed (number of votes)

- Integrating drought into other plans (510)
- Selecting mitigation options (478)
- Developing drought plan (422)
- Using impact info (420)
- Identifying triggers for response (418)
- Selecting response options (411)
- Using historical info (342)

#### Types of impact and management data needed (number of votes)

- Mitigation options/costs/benefits (477)
- Response options/costs/benefits (475)
- Likelihood of future impacts (471)
- Economic gains/losses of impacts (457)
- List of most important impacts (411)
- List of all impacts (377)
- Where impacts occurred (329)
- When impacts occurred (287)

#### Types of monitoring and prediction data needed (number of votes)

- Potential future drought conditions (552 votes)
- Historical drought occurrence (321 votes)
- Current drought conditions (276 votes)

### Perceived Effectiveness of Mitigation Strategies

We asked respondents how they perceive the effectiveness of various strategies for reducing the harmful effects of drought. The majority of respondents rated all of the options as moderately or extremely effective, including:

- Collaborating with water managers on future growth
- Investing in water efficiency technology
- Water restrictions
- Compact community design
- Floodwater diversion/storage
- Public education, xeriscaping
- Aquifer storage and recovery
- Floodplain diversion/storage
- Limiting the location of growth
- Drought planning
- Fitting hazard mitigation to land-use planning
- Addressing drought impacts in day-to-day government decision making
- Planning for climate change

Collaborating with water managers on future growth and investing in water efficiency technology were rated as the two most effective strategies.